Clark County, Washington
2002 National Pollutant Discharge Elimination System (NPDES) Annual Report

Submitted in compliance with National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge Permit No. WA-004211-1

June 30, 2003

Clark County Public Works Department
Vancouver, Washington

Q:\NPDES Permit Compliance\11159 Annual Reports\June 2003 annual report\Annual Report for 2002.doc

TABLE OF CONTENTS

STATEMENT OF CERTIFICATION

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature: _____

County Administrator

INTRODUCTION

Clark County's National Pollutant Discharge Elimination System (NPDES) municipal stormwater permit includes a requirement for an annual report to verify compliance with the primary permit requirement to perform the tasks of the stormwater management program and specific permit requirements.

This document is the annual report for the reporting period of January 1, 2002 to December 31, 2002. It is the fourth annual report under Clark County's permit. The Washington Department of Ecology (Ecology) extended Clark County's permit coverage from its expiration date of December 31, 2000 to whenever the next permit is issued. The county filed a notice of intent to receive permit coverage as a part of the June 2000 annual report.

ANNUAL REPORT REQUIREMENTS

Permit compliance reporting is made complex by overlapping permit requirements, multiple departments performing parts of permit components, and the reality that specific permit components are parts of larger county work programs. The following section quotes the permit requirements for the annual report.

S8. Stormwater Management Program Annual Report Requirements

A. The permittee shall submit an annual report by July 1, 2000 and annually thereafter. Any information in the report readily distinguished by water quality management areas should be presented as such.

B. The report shall include the following sections:

1. Status of implementing the components of the approved Stormwater Management Program (SWMP), including the status of compliance with the approved implementation schedule described in Special Condition S9, and a description and rationale of any program modifications made, other than those submitted for approval under Special Condition S5.A;

2. Notification of any recent or proposed annexations or incorporations resulting in an increase or decrease in permit coverage area, and implications for the SWMP;

3. Differences between planned and actual expenditures with a breakdown for the components of the SWMP and the budget since permit issuance. The report shall reflect numeric expenditures for the components of the SWMP;

4. Revisions, if necessary, to the fiscal analysis reported in the SWMP;

5. *A summary and analysis of the cumulative monitoring data collected throughout the term of the permit;*

    a. *If the permittee monitors any pollutant more frequently than required by the SWMP, then the results of this monitoring shall be included in the report.*

    b. *If the permittee conducts any other stormwater monitoring in addition to that required in the SWMP, then it shall provide a description of the additional monitoring in the report.*

6. *A summary describing compliance activities, including the nature and number of official enforcement actions, inspections, and types of public education activities;*

7. *Identification of known water quality improvements or degradation; and*

8. *The status of watershed-wide coordination and activities which the permittee has undertaken individually or jointly. The report shall include proposed management measures to enhance regional coordination and/or address regional stormwater problems that will be implemented during the term of the next permit.*

1. STATUS OF PERMIT COMPONENTS

The numbered sections of this report correspond with the numbered permit requirements described in the National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge Permit No. WA-004211-1 permit, with the exception that requirements S8.B.1 (status of permit components), S8.B.5 (summary of monitoring results), and S8.B.6. (summary of compliance measures) are combined to simplify presentation. The permit-defined stormwater management program components are listed, followed by a description of the status of compliance, including a section for activities scheduled under Condition S9.

The stormwater management program, submitted to Ecology in 1998 as the permit application, included permit-mandated activities and several water resource and habitat protection and enhancement activities not specifically required by the permit. This report focuses on stormwater management program activities that meet NPDES permit requirements, largely excluding activities that do not meet permit requirements.

S5.B.1. Comprehensive Planning Process

Permit Requirement

A description of a comprehensive planning process used to develop the stormwater management program including public participation, intergovernmental coordination, and the relationship to other planning processes.

Summary of Compliance Activities

The requirement for a comprehensive planning process to develop the stormwater management program was met by developing the 1999 NPDES stormwater management program submitted for the current permit. When Ecology issues a new permit, the county will be required to revise its stormwater management program.

This component also includes the ongoing activities of the Clark County Clean Water Commission, appointed by the Clark County Board of County Commissioners to advise them on issues related to stormwater fee expenditures.

S5.B.2. Management Needs and Priorities

Permit Requirement

An analysis of stormwater management needs, a system for prioritizing needs, a description of the basis for the priority system, and an implementation plan and schedule for the term of the permit that reflect the priority needs. The stormwater management program must have an appropriate balance between prevention and correction based upon available information about sources of pollution and discharges from municipal separate storm sewers owned or operated by the permittee.

Summary of Compliance Activities

This requirement was performed for the 1999 NPDES stormwater management program submitted for the current permit. The stormwater management program implements the highest priority activities. The next permit will likely cause a new needs assessment following the method prescribed by the permit under direction of the Clark County Board of County Commissioners and Clean Water Commission.

S5.B.3. Legal Authority

Permit Requirement

Adequate legal authority to control discharges to and from municipal separate storm sewers owned or operated by the permittee. This legal authority, which may be a combination of statute, ordinance, permit, contract, order, or inter-jurisdictional agreements with other permittees which have existing legal authority, shall include the ability to:

1. *Control the contribution of pollutants to municipal separate storm sewers owned and operated by the permittee from stormwater discharges associated with industrial activity, and control the quality of stormwater discharged from sites of industrial activity;*
2. *Prohibit illicit discharges to the municipal separate storm sewer owned or operated by the permittee;*
3. *Control the discharge of spills and the dumping or disposal of materials other than stormwater into the municipal separate storm sewers owned or operated by the permittee;*

4. *Control through interagency agreements or inter-jurisdictional agreements among permittees, the contribution of pollutants from one municipal separate storm sewer to another;*
5. *Require compliance with the conditions in ordinances, permits contracts, or orders; and*
6. *Within the limitations of state law, carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance with local ordinances.*

Summary of Compliance Activities

Within the limits of powers granted by state and federal government, Clark County maintained adequate legal authority to control pollutant discharges and to enter into agreements with other permittees. This authority has been in place since 1998.

S5.B.4. Monitoring Program

Permit Requirement

A program to monitor the effectiveness of the stormwater management program in reducing pollutants discharged and reducing impacts to surface waters, ground waters, and sediments. The monitoring program, based upon the priorities identified in Special Condition S5.B.2. and specific actions required in Special Condition S9.C., shall address field evaluation, sampling, and analysis to:

1. *Estimate concentrations and loads from representative areas or basins to be used in evaluating overall program effectiveness;*
2. *Evaluate the effectiveness of selected Best Management Practices (BMPs);*
3. *Identify specific sources of pollution; and*
4. *Identify the degree to which stormwater discharges are impacting selected receiving waters and sediments.*

The monitoring program shall include a quality assurance/quality control plan.

Summary of Compliance Activities and Summary Cumulative Data

The Water Resources Section of the Clark County Public Works Department performs the monitoring program. During the permit-reporting period, the Water Resources Section monitoring program continued current monitoring activities and began several new projects and activities. Each project or activity follows a quality assurance/quality control plan. Most have a Quality Assurance Project Plan following the Washington Department of Ecology guidance manual.

Along with projects by Public Works, there is a baseline stream description project underway by the Clark County Endangered Species Act (ESA) program.

Continuous Stream Gauges

Stream gauges provide a means to measure stream flow continuously. This information is used to describe drainage basin hydrology for various purposes and develop

computerized models needed for designing new stormwater facilities and predicting stream flow for proposed development conditions. As part of the SWMP and a Washington Department of Ecology Centennial Grant for Watershed Characterization, Water Resources began a project to upgrade existing gauges and add several new gauges. Three of the new gauges are permanent sites. Five new gauges are sited at Long-Term Index Sites and will operate for at least five years. The Index Site gauge locations focus on developing basins and a near-pristine reference site.

Clark County Stream Gauge Location	Site Name	Watershed	Status
Lacamas Creek at NE 217th Avenue	LAC080	Lacamas	Active
Lacamas Creek Goodwin Road	LAC050	Lacamas	Active
Matney Creek at NE 68th Street	MAT008	Lacamas	Under development
China Ditch upstream of NE Ward Road	CHD012	Lacamas	Under development
Breeze Cr. upstrm of LaCenter Btms bridge	BRZ008	East Fork Lewis	Under development
Gee Creek Abrams Park	GEE028	Gee Creek	Active
Whipple Creek at NW 179th Street	WPL048	Whipple Creek	Under development
Little Washougal at Blair Road	LWG013	Little Washougal	Active
Jones Creek Camas Property	JNS058	Little Washougal	Under development
Curtin Creek at NE 139th Street	CUR022	Salmon Creek	Active
Mill Creek at Salmon Creek Avenue	MIL008	Salmon Creek	Under development
Cougar Creek at NW 119th Street	CGR018	Salmon Creek	Under development
Salmon Creek at Klineline Foot Bridge	SMN020	Salmon Creek	Active
Salmon Creek at NE 156th Street	SMN045	Salmon Creek	Active

Continuous Rain Gauges

Continuous rain gauges provide an incremental record of rainfall with time. This information is used to analyze rainfall patterns and develop computerized models needed for designing stormwater facilities and stormwater basin plans. Under the SWMP and the Watershed Characterization Grant, Water Resources began a program to upgrade existing gauges and add new gauges to fill gaps in coverage.

Clark County Rain Gauge Site	Watershed	Status
Goodwin Road	Lacamas	Active
Yacolt Town	East Fork Lewis	Under development
Ridgefield Treatment Works	Gee Creek	Under development
Orchards Elementary	Burnt Bridge Creek	Active
Cape Horn School	Washougal River	Under development
Salmon Creek Treatment Works	Salmon Creek	Under development
Venersborg	Salmon Creek	Active
Salmon Creek at 156th Street	Salmon Creek	Active

Lacamas Lake Loading

Water Resources operates a continuous sampling station on lower Lacamas Creek at Goodwin Road. The station was constructed under the Lacamas Lake Restoration Program to estimate nutrient loading to Lacamas Lake. Rainfall, stream stage, conductivity, and temperature are recorded hourly. An automatic sampler collects storm

flow samples which are analyzed for total phosphorus and total suspended solids to calculate loading. The fifth and final year of operation began in October 2002. Weekly samples at the lake inlet and outlet augment the storm samples.

Lake Loading Trends: Results show a significant decrease (approximately 50 percent) in phosphorus loading since the early 1980's. This reduction was between the early 1980's baseline study and when current data gathering began in fall 1998. Since this project began, sediment and phosphorus concentrations in Lacamas Creek have remained unchanged.

Lacamas Lake Monitoring

Water Resources performs monthly monitoring in Lacamas Lake to track lake health over time and provide information to design future lake management actions. Vertical profiles collect dissolved oxygen, temperature, pH, conductivity, and turbidity at 1-meter intervals. Secchi-disk readings are also recorded and water samples collected from several depths for nutrient analyses.

Lake Monitoring Trends: Results showed a significant decrease in total phosphorus between the 1984 baseline assessment and data collected beginning in 1992. Since 1992, no trend is apparent. Lacamas Lake continues to be classified as eutrophic.

Storm Sewer Screening Program

Storm sewer screening also addresses requirements of S5.B.8.g. (illicit discharge abatement). The yearly screening project was completed during the summer months of 2002. The project focused on pipes and ditches carrying summer base flow, and higher risk areas such as areas where storm sewers have industrial and automotive oriented businesses. In 2002, the project inspected sites and collected water samples at sites that had dry-weather flow. Screening data was entered into the project database and problem sites were referred to education or enforcement staff, or are subject to further investigation.

Establish measured characteristics, indicators, and procedures

The stormwater management program established a set of biological, water quality, and physical habitat characteristics, indicators, and standard procedures to collect them. The characteristics form the basic environmental measurement tools for stormwater program and watershed monitoring. Along with developing the standard operating procedures, Water Resources implemented a training program for county field staff and an equipment maintenance program.

Long-Term Index Sites Project (LISP)

LISP monitoring began in August 2001. The LISP goal is to assess current conditions and trends in stream health at nine stormwater-influenced stream stations and a reference site. A suite of stream health characteristics are monitored at each site, including measures of physical habitat, biological condition, water quality, and hydrology. Characteristics and protocols are selected to produce data comparable to those collected by other agencies. Data are analyzed using standardized, regionally appropriate metrics to facilitate

comparability. Water quality monitoring takes place on a monthly basis, while habitat and biological assessments are conducted during late summer and early fall.

LISP Summary: After two years of data collection, sufficient data are available to characterize the current site conditions. Longer periods of time, possibly five to ten years, may be required to discern trends. Salmon Creek watershed site water quality and fecal coliform ratings include previous data from Clark Public Utilities (CPU).

Site ID	Stream	Watershed	BIBI Score Rating	Oregon DEQ Water Quality Index Rating for Fecal Coliform	Oregon DEQ Water Quality Index Rating
BRZ010	Breeze Creek	East Fork Lewis	Fair	Very Poor	Fair
RCN050	Rock Creek North	East Fork Lewis	Fair	Poor	Poor
CHL010	Chelatchie Creek	Cedar Creek	Fair	Excellent	Good
GEE050	Gee Creek	Gee Creek	Poor	Poor	Poor
WPL050	Whipple Creek	Whipple Creek	Poor	Very Poor	Poor
CGR020	Cougar Creek	Salmon Creek	Poor	Poor	Very Poor
CUR020	Curtin Creek	Salmon Creek	Poor	Poor	Very Poor
MIL010	Mill Creek	Salmon Creek	Fair	Good	Fair
MAT010	Matney Creek	Lacamas Creek	Fair	Poor	Good
JNS060	Jones Creek	Little Washougal	Excellent	Excellent	Good

Salmon Creek Monitoring Project

The intent of the Salmon Creek Monitoring Project is to provide high-quality water quality information about the Salmon Creek watershed to Clark Public Utilities and Clark County decision-makers. Clark Public Utilities began monitoring water quality in the Salmon Creek Watershed in 1995. During 2001, Water Resources began the Long-Term Index Site Project that included water quality monitoring at three Salmon Creek tributaries also monitored for water quality by CPU. In 2002, Water Resources and Clark Public Utilities agreed to consolidate ambient monitoring in Salmon Creek, standardize monitoring methods, and eliminate overlapping activities. As a result, Water Resources assumed responsibility for collecting water quality data at eight sites and Clark Public Utilities, in return, provides contracted maintenance and operation for two Clark County stream flow gages and three continuous rainfall gauges.

Summary of Salmon Creek Site Results: The five sites in the table below are CPU sites. The LISP summary includes three other Salmon Creek Watershed Sites previously monitored by CPU.

Site	Location Stream	Oregon DEQ Water Quality Index Rating for Fecal Coliform	Oregon DEQ Water Quality Index Rating
SMN010	Salmon Cr. @ NW 36th Avenue	Poor	Poor
SMN030	Salmon Cr. above Mill Cr.	Fair	Poor
SMN050	Salmon Cr. @ NE 122nd Avenue	Fair	Good
WDN010	Woodin Cr. @ NE 122nd Avenue	Very Poor	Poor
SMN080	Salmon Cr. @ NE 199th Street	Poor	Good

Volunteer Monitoring Project

Volunteer-collected data from this project support the monitoring objectives of the Long-Term Index Site Project and the SWMP. Sites are selected to increase the coverage of Water Resources' monitoring network. In addition, the program provides opportunities for citizens and trained watershed stewards to volunteer their time studying and evaluating the health of local streams. The project is based on a successful Clallam County program. The data from this project will be used to estimate the current stream-condition of four Clark County streams. The data are for: 1) comparison of physicochemical data to water quality standards and aquatic life criteria; 2) calculation of water quality and biological integrity indices; and 3) comparison of calculated stream-habitat characteristics to regional reference values. The data will also serve as the baseline for comparison in future studies.

Summary of Volunteer Results:

Site	Stream	Watershed	B-IBI Score	Rating
JEN010	Jenny Creek	East Fork Lewis	44	Good
FPL050	Fifth Plain Creek	Lacamas	28	Fair
LWG015	Little Washougal River	Little Washougal	24	Poor

Stream Health Report

Water Resources began a project to summarize and report existing water quality and macroinvertebrate data describing Clark County stream health. The report will provide observed stream health ratings using the Oregon Water Quality Index or probable stream health ratings based on land cover for the approximately 100 subwatersheds in Clark County. The project will be completed in mid 2003. Attachment A is a countywide map showing the results of the stream health report.

Washington State EPA 303(d) listing submittal

In fall of 2002, the Washington Department of Ecology called for data to complete the state's 2002 303(d) report. Water Resources responded by sending recently collected water quality, biological, and temperature data including:

- 15 monthly stream water quality grab sites
- 15 macroinvertebrate sites
- 10 continuous temperature sites
- Lacamas Lake quality data
- Nutrient loading data for Lacamas Lake
- A one day temperature survey of ten sites in Lacamas Watershed

ESA Program Environmental Template Project

During late 2001, the Clark County ESA Program began a project to characterize an environmental baseline for stream conditions in three watersheds. During 2002, the project began to summarize fluvial process indicators and develop an approach to integrate the results into salmon recovery activities.

S5.B.5. Fiscal Analysis

Permit Requirement

A fiscal analysis, covering the term of the permit, of the capital, and operation and maintenance expenditures necessary to implement the stormwater management program, and a description of staff, equipment, and support capabilities to implement the stormwater management program. The fiscal analysis shall include a description of the source of funds that are available or are proposed to meet the necessary expenditures.

Summary of Compliance Activities

The fiscal analysis requirement applies to submittal of the stormwater management program in the 1998 NPDES Part 2 application (revised in 1999). Each program element in the SWMP and the Special Condition S9 included a description of the estimated annual budget for each current and proposed activity. Funding sources were specified for current activities. A new stormwater fee, termed the Clean Water Program Fee was established to fund new activities.

Part 3 of this report, "Differences between planned and actual expenditures by component" provides detail about estimated and actual budgets and total expenditures.

The county uses financial tracking systems to account for stormwater fee revenue expenditures by permit component for most new activities. However, ongoing pre-permit activities are almost impossible to track by component.

Ongoing pre-permit activity funding

Development fees, general fund revenue, and the Road Fund generally fund ongoing pre-permit activities.

Clean Water Program Fund for New Activities

Clark County initiated a stormwater fee to pay for increased stormwater management under the permit (the permit condition S9 activities). The fee was approved in October 1999 and the first annual billing was mailed on June 20, 2000. All fee and grant revenue is placed in a special fund called the Clean Water Program Fund, to which only new stormwater management and water resource protection activities are billed. All billings to this fund are coded by permit component.

S5.B.6. Data Maintenance

Permit Requirement

A mechanism for gathering, maintaining, and using adequate information to conduct planning, priority setting, and program evaluation activities. The information and its form of retention shall include but not be limited to:

1. Mapping of known municipal separate storm sewer outfalls;

2. *Mapping of tributary conveyances, and the associated drainage areas of major municipal separate storm sewer outfalls;*
3. *Maps depicting existing land use;*
4. *A Map depicting zoning; and*
5. *A data base, including at least the following information: precipitation records; stormwater quality and quantity records; water quality and physical characteristics of receiving water that may be impacted by stormwater; and a description and location of major structural BMPs and other structural controls for stormwater discharges.*

Summary of Compliance Activities

Data are collected and maintained by several county departments and local and state agencies. The Public Works Department, Water Resources Section maps storm sewer infrastructure and maintains storm sewer and several water resource and stormwater management GIS layers. The Assessment and GIS Department maintains the balance of GIS information. The Public Works Department maintains most monitoring data.

Urban Storm Sewer Systems

Urban storm sewer system mapping consists of inventorying and mapping storm sewer pipe systems located in urban areas of unincorporated Clark County. During 2002, Public Works completed field mapping and data entry for the urban storm sewer system. An initial quality control check was performed to find missing or questionable inventory information and to note localities for further field investigation. In the fourth quarter of 2002, follow up fieldwork was initiated to address areas with questionable or missing data.

Public Facilities Inventory and Mapping

During 2002, work continued on mapping the public stormwater facilities. All public facilities in the GIS database were reviewed individually to accurately represent the facility area and design. These adjustments were performed using aerial photographs and "as-built" drawings. Public Works stores information on facility type, design and flow criteria and area of treatment for each facility in a GIS database. During 2002 the public facilities database was expanded to include 417 sites. Design criteria for flow and quality was recorded for 188 of these sites.

Private Facilities Inventory and Mapping

During 2002, mapping work was initiated to add private stormwater facilities to the GIS storm sewer database. The total number of private facilities was increased to 414 sites.

County Road Projects and Other Project Data

During 2002 all available "as-built" or record drawings for Public Works Road Projects were reviewed and entered into the storm sewer GIS database. Drawings from thirty-nine road construction projects were reviewed to add their conveyance and treatment facilities to the storm sewer database.

Rural Roadside Ditches

Rural drainage system mapping consists of inventorying and mapping roadside ditches along county right-of-way in areas lacking storm pipe systems. Over 5000 ditch segments are entered into the GIS database.

Development Project Record Drawings and Plan Sheets

The Assessment and GIS Department continued to scan and index record drawings and preliminary plan sheets for historic projects lacking record drawings. The total numbers of plans in the system are:

- 4,193 Subdivision and Short Plat Record Drawings;
- 1,470 Site Plan Record Drawings;
- 4917 Preliminary Subdivision and Short Plat Plans; and
- 623 Preliminary Site Plans.

All of the scanned documents are indexed and linked to internet-based maps. These maps are available for public viewing and were used by Public Works to verify storm sewer and facility mapping in the GIS database.

GIS Land Use and Water Resource Data

The Assessment and GIS Department has a library that includes land use descriptions, zoning classifications, basin boundaries, water bodies, basin boundaries, and other information useful for stormwater management. Some of this information may be viewed through the county web site. Layers that were actively maintained by GIS or Public Works include:

- Parcel boundaries and attributes including land use and zoning
- Administrative boundaries
- Urban growth boundary
- Easements from quarter sections
- Subdivision boundaries
- Public and private roads
- Orthophotographic images of the entire county
- 2 foot topography for urban and urbanizing areas
- Stormwater Fee Parcels
- Stormwater lines and points
- Stormwater facilities
- Commercial, industrial, public facility, and road impervious area measurement
- Public Works sample points
- 2 foot contours
- LiDAR cover
- Watershed and subwatershed boundaries

GIS data at the GIS Department or Public Works Department that may or may not be periodically maintained:

- Land Cover from a July 2000 Landsat image
- Sanitary sewer lines
- Land use
- Zoning
- DNR/SSHIAP water bodies
- Conservation easements
- State and federally owned lands
- Comprehensive land use plan for GMA
- Wellhead protection areas
- Septic system parcels

Landsat-7 TM Land Cover Map

In summer 2002, Public Works contracted with the University of Washington to perform a "rapid land cover classification" using a method devised by Hill, Booth, and Botsford (2000). The results provide an easy to use and uniformly defined land cover map in GIS. Uses of the map include planning monitoring projects, describing current watershed conditions, estimating probable stream health conditions, and further analysis of subwatershed metrics.

Stormwater Fee Database

In 2000, Clark County created a county-wide storm sewer fee database which includes every tax lot in unincorporated Clark County having assessed improvements valued at $10,000 or more. It also includes the amount of impervious area for each non-residential lot (businesses, industries, public facilities, county roads, state highways, and government facilities).

Centralized Water Quality and Quantity Database

Clark County continued to maintain databases for each monitoring project and revised data formats to ease transfer into a central database. Public Works established a centralized Microsoft Access database for recording and reporting storm sewer screening, private storm sewer maintenance inspections, and source control BMP implementation. Historic water quality and water resource reports are compiled into a set in Water Resources Section files. A data repository is established on Water Resources' network computer where digital data is compiled.

Work continued on a single database system for managing the program's environmental data. Water Resources researched and evaluated several 'packaged' databases including EPA's STOrage and RETrieval system (STORET), TetraTech's Ecological Data Application System (EDAS), and various customized solutions offered by private consultants.

Water Resources determined that a customized solution would be necessary to meet the objectives of various users and the requirements of permits and grants. A pilot-database was constructed in Microsoft Access97 to store water quality, biological, hydrological, and physical habitat data. The submittal guidelines of Ecology's Environmental

Information Management System (EIMS) were used as a data standard. After initial testing, the database was migrated into Microsoft Access 2000 and forms for entering various types of data were created. Plans were made to migrate the Access database into the county GIS SQL Server, using Microsoft Access as a 'front-end' for adding, editing, deleting, and reporting environmental data.

Along with development of the central database for monitoring data, Water Resources researched and tested an ESRI GIS data model called ArcHydro for displaying and modeling environmental data.

S5.B.7. Watershed-wide Coordination

Permit Requirement

Consider opportunities for watershed-wide coordination mechanisms to address the following during the term of the permit:

1. *Development of coordinated stormwater management programs for shared water bodies;*
2. *Coordination of data management and mapping activities for compatibility; and*
3. *Coordination of monitoring and modeling activities to develop comparable data sets among permittees when estimating pollutant concentrations and loads, evaluating impacts, and addressing controls.*

Summary of Compliance Actions

Clark County endeavors to coordinate with local municipalities and agencies that play a role in water resource or stormwater management. Examples include:

- Periodic meetings with the City of Vancouver and other Clark County municipal stormwater programs;
- Maintaining a centralized, county-wide GIS system for local storm drainage mapping (currently Clark County and the City of Camas use the system);
- Periodic meetings to share information with Puget Sound NPDES municipal stormwater permittees;
- Partnering with Clark Public Utilities Water Utility to develop HSPF model for Salmon Creek watershed;
- Implementing an intergovernmental agreement with Clark Public Utilities for Salmon Creek watershed data gathering;
- Implementing an intergovernmental agreement with the Lower Columbia Fish Recovery Board to develop a project for characterizing Clark County watersheds;
- Intergovernmental agreement with the Clark County Conservation District for coordinating stream protection projects and monitoring;
- Holding Clean Water Commission meetings to advise the Clark County Board of County Commissioners on stormwater issues;
- Public Works street waste decant facility which is shared with Vancouver and WSDOT, and available to other Clark County municipalities;
- A cooperative Watershed Stewards program at WSU Vancouver;

- Coordinated planning with WSDOT for stormwater retrofit capital improvement projects;
- Active participation by Public Works to develop the City of Vancouver Water Resources Protection Ordinance;
- Active participation in the Lower Columbia Fish Recovery Board;
- Active participation on the WRIA 27/28 planning unit;
- Coordination with Ecology TMDL programs in Salmon Creek and Gibbons Creek watersheds;
- Participating in the Regional Coalition for Clean Rivers and Streams which includes the Lower Willamette Valley and Portland metropolitan area;
- The county ESA coordinator is on the Board of Directors for Clark County Habitat Partners, a public-private organization promoting habitat preservation and restoration; and
- Coordinating monitoring events with the Lower Columbia River Estuary Partnership.

S5.B.8.a. New Development, Redevelopment and Construction Site Runoff

Permit Requirement

A program to control runoff from new development, redevelopment and construction sites that discharge to the municipal separate storm sewers owned or operated by the permittee. The program must include: ordinances, minimum requirements, and best management practices (BMPs) equivalent to those found in Volumes I through IV of Ecology's Stormwater Management Manual for the Puget Sound Basin (1992 edition), permits, inspections, and enforcement capability. The program must also include a process to make available copies of the "Notice of Intent for Construction Activity" and copies of the "Notice of Intent for Industrial Activity" to representatives of proposed new development and redevelopment.

Summary of Compliance Activities

Clark County Community Development Department implements the following development regulations to control stormwater's adverse influence on streams, wetlands, lakes, groundwater, and wildlife habitat:

- Stormwater and Erosion Control Ordinance;
- Wetlands Protection Ordinance;
- Habitat Preservation Ordinance; and
- Critical Aquifer Recharge Areas Ordinance.

Clark County Public Works Department issues and enforces permits for utility construction in county right-of-ways. These projects are also subject to the Stormwater and Erosion Control Ordinance.

Equivalence to the Stormwater Management Manual for the Puget Sound Basin (Washington Department of Ecology, Feb. 1992)

The county stormwater and erosion control code was revised for equivalence to the state manual and adopted by the Clark County Board of County Commissioners in July 2000. In April 2001, Ecology formally acknowledged that Clark County code meets the permit equivalency requirement.

Erosion Control Certification

Beginning January 1, 2001, County code requires all development contractors to be trained in erosion and sediment control by an organization recognized by the Community Development Department Director. The program has certified 770 people in Clark County as of the end of 2002.

Regulatory Program Compliance Measures

Stormwater and erosion control engineering design plans are only approved after detailed engineering review for conformance to stormwater code. Building permits are not issued until the subdivision stormwater system is complete. The low number of Development Services project inspections that noted erosion control certifications is because this was checked before the projects begin construction and not often noted in follow up field inspections.

2002 Stormwater and Erosion Control Engineering Plan Review

Plans Submitted	Number with Stormwater Features	Plans Approved	Stormwater Features in Compliance
94	75	63	75

2002 Development Services Inspections

Reporting Item	Totals
# of active construction projects	298
# projects with initial inspection for buffer stakes and sediment control	52
# projects with monthly erosion control log	74
# erosion control inspections	1,202
# projects with erosion control certification (became effective Jan. 2001)	23
# stop work orders for erosion control violations	5
# citations for erosion control violations	0
# stormwater control inspections	938
# stop work orders for storm control violations	0
# citations for storm control violations	0
# construction acceptances	82
# maintenance warranty inspections	156
# projects receiving maintenance warranty inspection at 22 months (for county ownership)	44
Percent projects receiving maintenance warranty inspection at 22 months (for county ownership)	100%
# warranty inspections where notice of deficiencies sent out	12
Percent warranty inspections where notice of deficiencies sent out	27%
# final warranty release	44

2002 Building Division Erosion Control Compliance Measures

MONTH	INSPECTIONS	CORRECTION ORDERS	STOP WORK ORDERS	CITATIONS
Jan.- March	4,287	319	13	0
Apr. - June	3,445	113	6	0
July – Aug.	5,575	178	8	0
Sept. – Dec.	5,326	204	9	0
Totals	**18,633**	**814**	**36**	**0**

Public Works Utility Permit Inspections

All public utilities permit work in right-of-way is required to have a utilities permit and follow the design specifications. These projects are also subject to erosion control requirements of Chapter 13.29 CCC, Stormwater and Erosion Control. Generally, statistics for the reporting period suggest each permitted activity received an average of about three inspections. Erosion control stop work orders were not tracked separately from other more common violations. Generally there are few stop work orders because education actions solved problems.

2002 Utility Inspection Compliance Measures

Permits Issued	Inspections	Stop Work Orders	Projects Lacking Permit	Erosion Control Violations	Erosion Control Education Actions
1,098	2,709	3	0	1	39

Public Works Road Program Plan Review

During 2002, all Public Works Department project design plans are submitted to Community Development for review and approval. The process is identical to private development projects.

Public Works Road Program Construction Compliance

County road project contractors are required to conform to local and state codes and laws by contract. This includes construction of stormwater facilities and erosion control measures. A staff person is dedicated to each project from the engineering and design to construction. A Public Works' site inspector visits the site early in the process to identify potential problems long before they become issues and to recommend field changes in the construction process. The inspector also audits the Stormwater Pollution Prevention Plans and the Erosion and Sediment Control logs required by the contract.

The standard construction contract includes individual bid items for erosion and sediment control, and stormwater pollution prevention BMPs. There are charges to individual water quality items, such as a construction entrance and wash rack, or an erosion control blanket. Specifications also include job requirements of Stormwater Pollution Prevention Plans, certified Erosion and Sediment Control Lead Person, and daily logs.

2002 Code Enforcement Division Compliance Measures

Code Enforcement Division enforces building, development, and environmental regulations. Two Code Enforcement Officers work full time on erosion control, the Water Quality Ordinance, and other environmental regulations.

2002 Code Enforcement Division Inspections and Violations

Type of Inspection	Grading	Erosion	Water Quality	Drainage	Wetland/ Habitat	Other	TOTAL
Complaints	157	495	28	49	146	5	880
Proactive Inspection	1	658	0	0	8	0	667
Subdivision Monitor	0	1060	0	0	22	0	1,082
Public Relations	15	326	4	31	60	0	436
TOTAL	**173**	**2,539**	**32**	**80**	**236**	**5**	**3,065**

	Grading	Erosion	Water Quality	Drainage	Wetland/ Habitat	Other	TOTAL
Violations	**46**	**471**	**6**	**4**	**48**	**1**	**576**

2002 Code Enforcement Resolutions

Type of Resolution	Grading	Erosion	Water Quality	Drainage	Wetland/ Habitat	Other	TOTAL
Correction Notice	43	314	5	21	66	5	454
Letter	17	10	9	3	26	0	65
Personal Contact	92	996	21	18	61	0	1,188
Education	33	225	24	10	35	0	327
Citation	1	3	0	0	0	0	4
Notice and Order	1	0	0	0	1	0	2
Stop Work Order	8	37	1	0	3	0	49
Hearing	0	3	0	0	0	0	3
Referral to Water Resources	0	0	3	0	0	1	4
TOTAL	**195**	**1,588**	**63**	**52**	**192**	**6**	**3,734**

Notice of Intent forms

Notice of Intent forms for NPDES industrial construction permits are available, along with development applications, at the Community Development customer service counter. The Stormwater and Erosion Control Ordinance requires projects to have all governmental permits as a part of a Final Stormwater Plan.

Regulatory Program Monitoring

Community Development implemented a set of criteria to monitor implementation of the Stormwater and Erosion Control Ordinance. These are included as reporting items in this permit component. The ESA program is beginning a program to assess the influence county regulations have on salmon habitat.

S5.B.8.b. Control of Runoff from Existing Residential and Commercial Development (includes retrofitting)

Permit Requirement

Appropriate treatment and source control measures to reduce pollutants in runoff from existing commercial and residential areas that discharge to municipal separate storm sewers owned or operated by the permittee.

Summary of Compliance Activities

Ecology further defines this requirement as a stormwater capital program to plan and build stormwater facilities to retrofit existing development. During 2002, the county stormwater management program began a process to identify, prioritize and build stormwater retrofit projects. The main retrofit projects were actually built as a part of County Road Construction Program.

Stormwater program capital improvement activities

Capital activities in 2002 included capital plan preparation, preliminary project engineering, and a prototype HSPF model for Salmon Creek. A capital framework was assembled including a group of pilot projects, a preliminary list for a 2004-2005 capital program, and planning for detailed watershed assessment to eventually produce an individual project list for each watershed.

Preliminary engineering was performed for four pilot projects, originally planned for construction in 2002.
These are:

- Salmon Cr./Hwy 99 - Filter A filter vault for an existing highway and commercial area.
- I-205/Salmon Cr. Water Quality Treatment- A retrofit of an existing freeway bridge and adjacent roadway
- Cougar Cr. Infiltration Project- An infiltration retrofit for an existing residential neighborhood.
- Thomas Wetland Improvement- A combined wetland enhancement and water quality project in an existing, degraded wetland.

Due to permitting, right-of-way acquisition problems, and unanticipated soil conditions, construction of these will take place in 2003.

Road project retrofits

Road improvement projects often add stormwater controls for existing upstream impervious areas lacking treatment and retention/detention facilities at current standards. The following is a summary and cost estimate of road projects that include stormwater controls for areas draining into the project. The expenditures are estimates because projects did not separate all of the retrofit costs. The original stormwater management program did not include or anticipate this type of stormwater capital project.

Road Program Stormwater Retrofits

Project	New Impervious	Retrofit Impervious	Total Impervious	Retrofit	Retrofit	Retrofit R-O-W	Total Retrofit
	Area Treated (ac.)	Area Treated (ac.)	Area Treated (ac.)	Design Cost	Construction cost	Purchase Cost	Cost
St. Johns Road/NE 72nd Avenue	14.2	13.1	27.3	$0	$0	$134,213	**$134,213**
Padden Parkway(West)	1.3	10.5	11.8	$0	$27,000	$0	**$27,000**
NE 117th / 119th Street	5.8	9.5	15.3	$0	$176,960	$0	**$176,960**
NE 199th Street	4.1	4.0	8.1	$0	$0	$136,120	**$136,120**
NE 25th Avenue	9.8	4.1	13.9	$0	$43,713	$0	**$43,713**
NE 76th Street	0.7	2.4	3.1	$0	$43,820	$0	**$43,820**
Total Cost							**$561,826**

Costs are equal to that portion of stormwater management spent to treat existing impervious area.
Current Clark County code requires treating 100 percent of the impervious area.

S5.B.8.c. Operation and Maintenance of Municipal Storm Sewers

Permit Requirement

Operation and maintenance programs for new and existing stormwater facilities owned or operated by the permittee, and an ordinance requiring and establishing responsibility for operation and maintenance of other stormwater facilities that discharge into municipal separate storm sewers owned or operated by the permittee. The programs shall include a strategy for addressing the disposal of street waste, decant, and cooperative efforts with Ecology and other entities to develop decant solutions.

Summary of Compliance Activities

Public Works' Operations Division maintains all county-owned storm sewers and roadside ditches. Private facilities and storm sewer systems are maintained by the owner or operator. The Stormwater Facility Maintenance Manual adopted by reference under Chapter 13.26A CCC has standards and practices for maintaining both public and private storm sewer systems. The county owns and operates a decant facility which also serves other governments' maintenance programs.

County Storm Sewer Maintenance

During 2002, Clark County operated and maintained storm sewers according to schedules and standards established for the approved NPDES stormwater management program. The Stormwater Facility Maintenance Manual includes source control, erosion control, and vegetation management standards and practices which apply to all private and public stormwater facilities. In addition, the Water Quality BMP Manual for Operation and Maintenance of Publicly Owned Property includes source control, erosion control, and vegetation management standards and practices for activities that maintain roads, stormwater facilities, public facilities, and park lands.

Swale Condition Inventory

During 2002, Water Resources Capital Program performed a project to inventory the condition of about 270 biofiltration swales and detention ponds. Each site was visually inspected to observe and note function and condition. Each site was documented with

digital photographs. Facilities were evaluated for grass quality and coverage, channeling, sediment build-up and ponding. Sites with channeling problems are under review for possible repair alternatives. Sites needing immediate repair were referred to Operations and Maintenance for corrective actions. This project implements storm sewer facility maintenance requirements under Chapter 13.26A of the County Code.

2002 Stormwater Facility Maintenance Compliance Measures

Facility/Activity	NPDES-Required Activity	Performance Measures	Number of Activity
Catch basins	Inspect 1x/yr clean following maintenance standards	# catchbasins owned by CC # catchbasins inspected # catchbasins cleaned percent catchbasins cleaned	Approx. 6700 all inspected 6714 cleaned 100 percent cleaned
Manholes	Inspect 1 x/yr clean following maintenance standards	# manholes owned # manholes inspected # manholes cleaned percent cleaned	Approx. 2400 all inspected 18 cleaned 1 percent
Drywells	Inspect /clean every 3-5 years	# drywells owned # drywells inspected # drywells cleaned percent cleaned	Approx. 900 all inspected 33 4 percent
Detention/Retention facilities	Mow 3 or 4 x/yr or maintain vegetation as natural	# R/D facilities owned # mowings # other maintenance done percent compliance	161 513 all weeded 100 percent
Biofiltration Swales	Mow 3 or 4 x/yr other activities as per manual	# swales owned # times swales mowed description of other activity percent compliance	334 4 times cleaned/weeded 100 percent
Spill Response-stormwater facilities	Procedures in place	# of kits in vehicles # of vehicles percent of vehicles w/spill kits # of spills reported to Ecology	158 170 93 percent -
Storm Sewer Pipe	Inspect/maintain as necessary	# feet cleaned	7,650
Maintenance Tracking	Use computer based system to track activities	Activity Tracking Database still in use	

Maintenance Tracking System

The county currently uses a Microsoft Access® database to track maintenance activities for the permit.

Private Stormwater Systems Inspection

Public Works has an inspector who has the job of checking all private storm sewer facilities for compliance with maintenance standards.

Public Works stormwater education staff inspects sites that are more likely to require source controls and provides source control technical assistance.

2002 Compliance Measures for Private Storm Sewer Maintenance and Source Controls

Number	Reporting Item
374	Private stormwater systems had **maintenance** inspections
332	Private stormwater systems meeting **maintenance** requirements
27	Private stormwater systems not meeting **maintenance** requirements
2	Private stormwater systems referred/provided **maintenance** info/education
103	Private stormwater systems had **source control** inspections
22	Private stormwater systems meeting **source control** requirements
81	Private stormwater systems not meeting **source control** requirements
103	Private stormwater systems referred/provided **source control** info/education
2	Private stormwater systems referred to Code Enforcement for **source control**

Decant Facility Operation

Clark County operates a storm sewer sludge decant facility to manage materials pumped from catch basins, drywells, and other storm sewer components. Liquids are treated and discharged to small, clay-lined retention ponds, which can be emptied to the sanitary sewer. Solids are managed and disposed of, or reclaimed under a solid-waste handling permit issued by the Southwest Washington Health District. The City of Vancouver and WSDOT also use the facility. Other Clark County municipalities have the option of contracting to use the facility.

S5.B.8.d. Operation and Maintenance of Roads and Highways

Permit Requirement

Practices for operating and maintaining public streets, roads and highways, including rest areas, to reduce stormwater runoff impacts.

Summary of Compliance Activities

Clark County maintained roads and streets according to schedules and standards established for the approved NPDES stormwater management program. Public Works Operations Division and Parks Maintenance Section follow standards and practices in the Water Quality BMPs for Operation and Maintenance of Publicly Owned Property manual. The manual was adopted as policy in July 2000 for the use of pesticides and fertilizer on county lands and by Public Works for road maintenance activities.

2002 Compliance Measures for Road and Street Maintenance

Facility/Activity	NPDES-Required Activity	Performance Measures	# Activities Completed
Sweeping Streets	Residential 9 x/yr.; arterial 12 x/yr.	# arterial sweeper sections # neighborhood sweeper sections # times each arterial section swept # times each neighborhood section swept percent compliance	40 42 14 9 100 percent
Spill Response-stormwater facilities	Procedures in place	# of kits in vehicles # of vehicles percent of vehicles w/spill kits # of spills reported to Ecology	158 170 93 percent 4
Litter Removal	4 x/yr. On arterials, as needed	# times litter picked up on arterial roads	227
Roadside Ditches/Culverts	Preventative Maintenance on all	# ditches inspected # ditches cleaned # culverts inspected # culverts cleaned	all inspected 8 percent all inspected 8 percent

S5.B.8.e. Consideration of Water Quality in Flood Control Projects

Permit Requirement

A program to include water quality management considerations into flood management projects, including a schedule for retrofitting existing projects to the extent possible.

Summary of Compliance Activities

Clark County flood control projects are limited to small drainage maintenance and repair activities. The projects include stream-bank erosion control and water quality treatment where feasible. There were few drainage projects during the reporting period and none of a scale that made it feasible to add water quality retrofits.

S5.B.8.f. Reduction of Water Pollution from pesticides, herbicides, and fertilizers

Permit Requirement

A program to reduce pollutants associated with the application of pesticides, herbicides, and fertilizer discharging into municipal separate storm sewers owned or operated by the permittee.

Summary of Compliance Activities

Solid Waste Program Hazardous Waste Drop Off Sites

Public Works Solid Waste Section continued (non-education) projects to encourage proper disposal of hazardous waste including pesticides and fertilizers. The household hazardous waste and small generator waste collection and disposal program is a primary

tool for reducing the amount of pesticides and fertilizers in the environment. It is discussed in greater detail under "S5.B.8.g. Illicit Discharge, Improper Disposal, and Spill Abatement".

Plan and Schedule for Minimizing WQ Impacts from Pesticides and Fertilizers

The Clark County Water Quality BMP Manual for Operation and Maintenance of Publicly Owned Property includes standards and practices for use of pesticides and fertilizers. It was adopted as county policy in July 2000 and is being implemented by Public Works. The manual is also followed by Vancouver/Clark Parks, which manages parks and open space owned or operated by Clark County.

The Stormwater Facility Maintenance Manual, adopted as code in July 2000, provides guidelines for vegetation management of public and private stormwater facilities. A stormwater facility inspector inspects private facilities and provides the public with maintenance information (see S5.B.8.c.).

Public Works Integrated Pest Management Policy Development

In November 2002, a committee was organized to formulate an Integrated Pest Management (IPM) Policy for Clark County Public Works. The goal of the committee is to write and then implement an IPM Policy for all Public Works projects and activities with the ultimate goal of reducing the amount and toxicity of pesticides used. Members of the Public Works IPM Committee included Parks Maintenance, Water Resources, Transportation Program Environmental Permitting, and the Clark County Weed Management Department.

S5.B.8.g. Illicit Discharge, Improper Disposal, and Spill Abatement

Permit Requirement

A ongoing program to detect, remove and prevent illicit discharges and improper disposal, including spills, into the municipal separate storm sewers owned or operated by the permittee.

1. *Each permittee shall effectively prohibit illicit discharges to the municipal separate storm sewers owned or operated by the permittee other than those authorized under a separate NPDES permit. Unless identified by either the permittee or Ecology as significant sources of pollution to water of the state, the illicit discharges listed in 40 CFR 122.26(d)(2)(iv)(B)(1) need not be prohibited from entering the municipal separate storm sewers owned or operated by the permittee. As necessary, the permittee shall incorporate control measures in the stormwater management program to ensure these discharges are not significant sources of pollutants to waters of the state.*
2. *The program shall include ongoing field screening, using the methods required in 40 CFR 122.26(d)(1)(iv), or alternative methods that have been approved by Ecology. The field screening program shall focus on urbanized areas.*

3. *The program shall incorporate best management practices and procedures to prevent, contain, and respond to spills or improper disposal into the municipal separate storm drains owned or operated by the permittee.*

Summary of Compliance Activities

Clark County continues to enforce the Water Quality Ordinance adopted in November 1998. The storm sewer screening program annually inspected and tested water in storm sewers, focusing on high risk areas. Public Works has spill kits in many vehicles. Public Works also works with businesses and the general public to collect and dispose/recycle oil, hazardous waste, and moderate waste.

Water Quality Ordinance

The Community Development Department's Code Enforcement Division and the Public Works Department implement the Water Quality Ordinance. Code Enforcement responds to complaints and uses both education and enforcement actions. Public Works compliance approach is to provide source control BMP information and education.

The reporting for source control and storm sewer maintenance is under component S5.B.8.c. Storm sewer O and M.

Storm Sewer Screening

Storm sewer screening is described as part of the monitoring program under condition S5.B.4.

Waste Collection and Disposal Programs

Public Works Solid Waste Section operates several programs to collect and properly dispose of hazardous waste material. Clark County believes these programs reduce the amount of waste that is improperly disposed of to storm drains, the ground, or water bodies.

Mobile/Satellite Hazardous Waste Collection

	Jan. - Dec. 2002
Number of Sites	8
Number of participants	408
Amount of Household Hazardous Waste	35,698 Pounds

Motor Oil Recycling

	Jan. - Dec. 2002
Amount of used oil collected at household hazardous waste sites	23,313 gallons
Amount of used oil collected curbside	48,128 gallons
Amount of used oil collected at used oil collection sites	14,815 gallons

Moderate Risk Waste Collection Sites

	Jan. -Dec. 2002
Number of Sites	3
Number of participants	3,005
Total hazardous waste collected at fixed sites (and paint from satellite events	1,091,491 lbs.
Amount of latex paint collected for recycling	304,876 gallons
Amount of latex paint recycled	188,826 gallons

Spill response

Public Works follows practices described in the Water Quality BMPs for Operation and Maintenance of Publicly Owned Property manual. Public Works has limited capacity for responding to hazardous materials spills; however, spill response kits are provided for many Operations Division's vehicles. Awareness training is performed annually. In addition, twenty employees, representing each service area and the Salmon Creek Treatment Plant, underwent eight hours of Hazardous Materials (296-834-30005 Operations Level) training.

Spill response is coordinated through the Clark Regional Emergency Services Agency and the Department of Ecology. Policy is in place for notification of the appropriate responder for abandoned materials. Spills other than small vehicle fluid spills are referred to the Department of Ecology through the 911 system.

2002 Spill Response Measures

Facility/Activity	**NPDES-Required Activity**	**Performance Measures**	**# Activities Completed**
Spill Response-stormwater facilities	Procedures in place	# of kits in vehicles # of vehicles percent of vehicles w/spill kits # of spills reported to Ecology	158 170 93 percent 4

S5.B.8.h. Industrial Stormwater Pollution Reduction

Permit Requirement

A program to reduce pollutants in stormwater discharges from industrial facilities that discharge into municipal separate storm sewers owned or operated by the permittee, and ensure compliance with local ordinances. The program shall include, but not be limited to:

1. *Procedures to identify industrial facilities that discharge into the municipal separate storm sewers owned or operated by the permittee.*

2. *A field inspection program to assess compliance with local ordinances adopted in accordance with Special Condition S5.B.3; and*
3. *A program to monitor and control pollutants in stormwater discharges to municipal separate storm sewers owned and operated by the permittee, from industrial facilities that the permittee determines are contributing a substantial pollutant loading to municipal separate storm sewers. For industrial facilities which require coverage under Ecology's "Baseline General Permit for Stormwater Discharges Associated with Industrial Activity," this program shall be developed jointly with Ecology.*

Summary of Compliance Activities

There is relatively little industrial area in unincorporated Clark County. Industrial sites are generally scattered individual operations, small industrial areas, or gravel mining and processing facilities covered by state waste discharge permits. County actions are limited to those described here and actions described for private storm sewer inventory, inspection and maintenance requirements for Component S5.B.8.c. and Component S5.B.8.g.

Inventory

Water Resources maintains an inventory of businesses subject to the Water Quality Ordinance using the stormwater fee billing database and Assessor's office records of parcel land use. The stormwater fee billing database identifies every non-residential parcel for stormwater facility maintenance and source control requirement tracking.

Field Inspection

The storm sewer maintenance and source control inspections described under S5.B.8.c. meet this requirement.

Industrial Stormwater Compliance

Storm sewer screening, source control inspections, and storm sewer maintenance inspections suggest that there are few if any industrial sites that *"contribute substantial pollutant loading"* beyond typical commercial sites.

Pollution problems for facilities covered by NPDES industrial stormwater permits are referred to the Department of Ecology for enforcement. Water Resources informally coordinates compliance with the Ecology Southwest Region NPDES industrial stormwater permit inspector and Vancouver Field Office staff. Clark County made no industrial stormwater permit referrals to Ecology during 2002. However, during 2002, one problem discharge was eliminated. A site discharging heated cooling water to county storm sewer under an Ecology waste discharge permit switched the discharge to sanitary sewer.

S5.B.8.i. Education to Reduce Stormwater Pollution

Permit Requirement

An education program aimed at residents, businesses, industries, and employees of the permittee whose job functions may impact stormwater quality. An education program may be developed locally or regionally. The program shall include: Education on the proper use and disposal of pesticides, herbicides, and fertilizers; training of construction contractors and developers on developing stormwater site plans and BMPs for construction activities; efforts to explain the definition and impacts, and promote proper management and disposal of used oil and toxic materials.

Summary of Compliance Activities

The Solid Waste Section, Water Resources Section, and ESA Program perform numerous activities to promote pesticide and fertilizer reduction, proper waste disposal, and source control BMPs through education. The Community Development Department has a certification program for erosion control contractors. No program exists for training regarding site plans because they are required to be signed by licensed professional engineers. Several activities promote watershed stewardship.

Waste Reduction and Environmental Information and Education

Public Works' Solid Waste Section conducts the solid waste program that includes activities aimed at proper management and disposal of hazardous waste and reducing hazardous or toxic materials use. Several of these programs focus on promoting water resources protection and sound environmental practices by businesses. The County also supports and participates in regional programs such as the Environmental Information Cooperative and numerous special events.

Small Quantity Hazardous Waste Generator Assistance Program

Public Works Solid Waste Section collects and disposes of large amounts of household hazardous waste from Clark County residents. These activities are reported in collection activities

Action	Jan. - Dec. 2002
Number of business site visits	41

Stormwater Specific Information and Education

Water Resources has one specialist working solely on stormwater technical assistance for businesses and homeowners and two Solid Waste Section staff who provide broader technical assistance for toxic material and waste reduction. This activity is also reported as a private stormwater system maintenance and source control requirement under S5.B.8.c. In addition, about 49 residential source control complaints were responded to.

Action	Jan. – Dec. 2001
Number of businesses visited	103

Pesticide Reduction Education/Mother Natures Garden Puppet Shows

Clark County has a traveling puppet show that brings fertilizer and pesticide reduction education to large numbers of elementary school students. In addition, approximately 170 sets of classroom materials and about 1,500 booklets were distributed.

Action	**Number of presentations**	**Total Participants during Jan. - Dec. 2002**
Mother Natures Presentations	62 at 25 sites	4,015

Environmental Information Cooperative

Clark County is one of six partners that support the Environmental Information Cooperative. The Environmental Information Cooperative provides coordinated environmental education. The EIC provides programs to school children and teachers throughout Clark County. This includes the River Rangers presentations to primary school classes.

Environmental Information Cooperative Activity	**Total Participants during Jan. - Dec. 2002**
Columbia River Watershed Festival participants	1,638
Watershed Congress participants	175
Enviroscape presentations	35
Number of Children reached by Enviroscape presentations	776
Class room groundwater presentations	4
Number of Children reached by groundwater presentations	96
River Ranger Presentations	35
Number of Children reached	442

Watershed Stewards Program

Clark County funds a full-time position to implement the Watershed Stewards Program at Washington State University Extension. The Watershed Stewards Program trains volunteers in watershed and water quality protection. These volunteers, in turn, contribute back to the community by educating the public at community events and fairs, guiding students and adult volunteers in tree plantings, and monitoring projects, plus a variety of other activities.

The Watershed Stewards program focuses mainly on adult involvement while the EIC is aimed at children. The Watershed Stewards program offers two 10-week training sessions during the year with 30 new Stewards trained in 2002. The program currently boasts 72 active volunteers who contributed about 1,400 hours of volunteer time and provided outreach contacts to about 16,000 people in 2002.

Watershed Stewards

PROGRAM	**TOTAL PARTICIPANTS DURING Jan. – Dec. 2002**
Number of Watershed Stewards training groups	2
Number of Watershed Stewards trained	30

Regional Coalition of Clean Rivers and Streams

Clark County actively participates in the Regional Coalition for Clean Rivers and Streams. In 2002, a regional campaign entitled "The River Starts Here" featuring a picture of a storm drain was continued in the Portland Metropolitan and Clark County areas. It included a advertising campaign base on the slogan "what goes in the lawn goes in the stream". The campaign included slides at 38 cinema screens during the month of April and nine major newspaper ads in the Portland-Vancouver area. More information is available at the internet site: http://www.cleanriversandstreams.org.

Community Events

Outreach and education included several annual community events such as the Annual Home and Garden Fair (3 days), the Clark County Fair (10 days), and the Lacamas Watershed Festival (1 day).

Storm drain Stenciling

Clark County provides materials and stencils to volunteers for an on-going storm drain stenciling project. Coordination of this effort is now part of the Watershed Stewards Program.

Erosion Control Certification Training

Clark County requires certification for all contractors installing and maintaining erosion controls. This is accomplished through a locally operated training and certification program. The program is administered by the Building Industry of Southwest Washington. Clark County provides part of the training, including field techniques. The program trained and certified 159 additional persons for a total of 770 since the program began.

Status of Condition S9 Scheduled Actions

Special Condition S9 listed specific new activities with implementation schedules before the current reporting period. This section lists the activities and their schedule status.

Requirement	***Schedule***	***Status***
S9.A.1. Stormwater equivalence to the Puget Sound Manual	Adopted by 7/31/00	In place 7/28/00
S9.A.2. Storm sewer maintenance ordinance	Adopted by 7/31/00	In place 7/28/00
S9.A.3. Add 1FTE code enforcement officer	In place 8/31/99,	In place 8/31/99
S9.A.3. Add 1FTE code enforcement officer if work load dictates	In place 2/28/00	In place 2/28/00
S9.A.4. Add 1 FTE erosion control inspector for Building	3/31/00	In place 3/31/00
S9.A.4. Add 1 FTE erosion control inspector for Dev. Serv.	3/31/00	In place 3/31/00
S9.A.5. Add 1 FTE stormwater facility inspector for new development	7/31/00	In place 7/00
S9.A.6. Implement Water Quality Ordinance	System in by 7/31/00	Began 7/00
S9.B.1. Increase street sweeping to specified standards	Start 8/31/99	Began 8/99
S9.B.2. Increase swale maintenance to standards	Start 8/31/99	Began 8/99
S9.B.3. Implement inspection and maintenance program for R/D facilities	Start 3/31/00	Began 3/00
S9.B.4. Implement roadside ditch and culvert maintenance standards	Start 3/31/00	Began 3/00
S9.B.5. Add 1FTE for private facilities inspection	Start 7/31/00	In place 6/00
S9.B.6. Develop spill response program	In place 7/31/00	Began 6/00
S9.B.7. Perform storm pipe maintenance to standards	Start 3/31/00	Began 3/00
S9.B.8. Begin yearly catch basin inspection and cleaning	Start 8/31/99	Began 8/99
S9.B.9. Begin 5-year drywell cleaning cycle	Start 3/31/00	Began 3/00
S9.B.10. Establish computer-based maintenance tracking	In place 12/31/00	System in Place 1/00
S9.B.11. Develop a program to map private storm sewers and track maintenance	In place 7/31/00	In place
S9.C.1. Establish a centralized SWMP database	In place 12/31/00	Work continued in 2002
S9.C.2. Establish GIS storm sewer maintenance program	In place 12/31/00	Data QC performed in 2002
S9.C.3. Regulatory program monitoring project	In place 7/31/00	Ordinance tracking in place 7/00
S9.C.4. Establish storm sewer screening	In place 7/31/00	In place 7/00
S9.C.5. Watershed Characterization program schedule	Drafted by 7/31/00	Started projects in summer 2001
S9.D.1. Permit funding Strategy	Ordinance by 9/31/00	Completed 10/99
S9.D.2. Lawn campaign	In place 12/31/99	In place 12/99
S9.D.3. Add 2 FTE for stormwater specific education	In place 7/31/00	Completed 4/00
S9.D.4. Add 1 FTE for watershed steward program	In place 7/31/00	In place 11/99
S9.D.5. Add ½ FTE for river ranger program	In place 3/31/00	In place 8/99
S9.D.6. County policy on pesticide and fertilizers	In place 7/31/00	In place 7/00
S9.E.1. Establish capital improvement program	Begin by 8/31/00	Project selection, design, and construction continued in 2002

2. NOTIFICATION OF CHANGE IN PERMIT AREA

During 2002, approximately 140 acres was removed from unincorporated Clark County by a single annexation of land into Battle Ground. In all, about 2,000 linear feet of rural county road was added to the City of Battle Ground.

3. DIFFERENCES BETWEEN PLANNED AND ACTUAL EXPENDITURES BY COMPONENT.

The permit asks for a description of:

Differences between planned and actual expenditures with a breakdown for the components of the SWMP and the budget since permit issuance. The report shall reflect numeric expenditures for the components of the SWMP.

Summary of Compliance Actions

This report includes tables showing:

- Estimated budget and expenditures for 2002 by Program Element and
- Yearly expenditures by Permit Component.

It is not possible to track every dollar spent on NPDES permit compliance because no systems were in place to separately track some pre-permit stormwater activities. Also, Clark County uses a biennial budget (2001-2002 calendar years), forcing an estimate of yearly budgets as one-half the biennial budget for the first year and the budget balance for the second year.

Ongoing pre-permit activities had a recognized revenue source in 1999. New activities had no established revenue source until October 1999, when the Board of Clark County Commissioners adopted a stormwater fee and established the Clean Water Program Fund. Ongoing pre-permit activities are often difficult to separate from non-stormwater activities because that was not an issue when expense tracking was originally set up. New activities billed to the Clean Water Program Fund generally have work orders tagged to individual permit components. However, expenses for enhancements of ongoing activities such as erosion control inspections on building projects are not tracked separately from other concurrent site inspections.

Estimated Budget and Expenditures by Program Element

The estimated 2002 budget includes ongoing pre-permit activities and new permit-required activities billed to the new Clean Water Program Fund. Ongoing pre-permit activities continue at about pre-permit levels. Costs for operation and maintenance of stormwater facilities and roads can vary by season and from year-to-year depending on weather. For example, extremely wet weather can greatly increase costs for emergency actions and repairs, while dry weather decreases costs. Several late 1990's projects included in the pre-permit budget were completed in 2001 and dropped from the 2002 budget.

As of 2002, the Stormwater Capital Improvement; Monitoring and Evaluation; and Administrative Program Elements are entirely included in the Clean Water Program Fund budget. Program administration includes program costs such as manager's time, the annual permit fee, annual permit report to Ecology, and stormwater fee collection. The budgets for these program elements are the Clean Water Program Fund budget element balances at the beginning of 2002.

The Regulatory; Operations and Maintenance; and Public Involvement and Education Program Elements include budget from the Clean Water Program Fund and other previously existing revenue sources such as development fees, the Road Fund, and the Solid Waste Fund. For these program elements, ongoing pre-permit activity budgets are estimated as the sum of NPDES-required activities from year-1 baseline in the Stormwater Management Program (April 1999) and the Clean Water Program Fund budget balance at the beginning of 2002. The Public Involvement and Education budget estimate is lower in 2002 because several grant projects were completed in 2001.

Expenditures for O and M; Monitoring and Evaluation; Public Involvement and Education; and Administration are from the county accounting system and project billings. The Regulatory Program and Capital Program include estimates for expenditures on projects and activities not tracked separately for the NPDES permit. The Clean Water Program Fund had a cash reserve balance of $6,106,067 at the end of 2002. County regulations earmark the cash reserve for stormwater capital improvement projects.

Estimated SWMP Budget and Expenditures by Program Element

SWMP Program Element	***Est. 2000 Budget***	***Est. 2000 Expend.***	***Est. 2001 Budget***	***Est. 2001 Expend.***
Regulatory Program	$ 1,813,542	$ 1,621,799	$ 1,454,242	$2,016,242
Operation and Maintenance	1,895,997	2,085,268	2,325,858	2,250,005
Monitoring and Evaluation	434,180	204,874	595,883	428,763
Public Involvement and Education	1,050,327	776,589	923,124	1,058,034
Capital Improvements	670,610	2,240412	303,618	792,948
Program Administration/coord.	643,695	860,983	382,402	386,375
Totals	**$7,189,004**	**$7,789,925**	**$5,987,128**	**$6,934,368**
Accumulated Cash Reserve for Stormwater Projects		1,906,796		4,366,313

SWMP Program Element	***Est. 2002 Budget***	***Est. 2002 Expend.***
Regulatory Program	1,745,555	2,005,196
Operation and Maintenance	2,453,506	1,653,523
Monitoring and Evaluation	597,608	590,480
Public Involvement, Education,	881,592	1,345,065
Capital Improvements	559,124	622,939
Administration/Coord.	296,220	335,762
Totals	**$6,535,607**	**$6,552,965**
Accumulated Cash Reserve for Stormwater Projects		6,106,067

Estimated Annual Expenditures by Permit Program Component

Stormwater program components are defined by the permit as specific requirements to develop and implement the stormwater management program. Components S5.B.2., S5.B.3., and S5.B.5. had no expenses during 2002 because they relate to developing the stormwater management program for the permit application completed in 1999. Other components had little or no expenses because the activities are conducted as parts of other components. For example, testing and screening for non-stormwater discharges from industrial facilities under component S5.B.8.h. is actually included in the monitoring program (S5.B.4.). Condition S9 components are included in the broader S5.B. components.

Estimated Yearly Expenditures by Permit Component

Component	***Aug. to Dec. 1999***	***2000***	***2001***	***2002***
Regulatory Program				
S5.B.8.a. New Development, Redevelopment and Construction Site Runoff	450,140	1,621,799	2,016,242	2,005,196
Operations and Maintenance				
S5.B.8.c. Operation and Maintenance of Municipal Storm Sewers	675,052	1,295,186	1,464,892	1,132,333
S5.B.8.d. Operation and Maintenance of Roads and Highways	312,621	790,082	785,113	521,190
Monitoring and Evaluation				
S5.B.4. Monitoring Program	58,306	102,926	174,527	452,868
S5.B.6. Storm Sewer Mapping and Data Maintenance	0	101,948	254,236	137,612
Public Involvement and Education				
S5.B.1. Comprehensive Planning Process	8,787	24,405	52,009	23,117
S5.B.2. Management Needs and Priorities	0	0	0	0
S5.B.7. Watershed-wide Coordination	0	160	3,599	12,016
S5.B.8.f. Reduction of water pollution from pesticides, herbicides and fertilizers	0	162	26,146	73,899
S5.B.8.g. Illicit Discharge, Improper Disposal, and Spill Abatement	166,573	286,658	319,184	350,292
S5.B.8.h. Industrial Stormwater Pollution Reduction	0	0	0	51
S5.B.8.i. Public Education	211,019	489,609	709,105	885,690
Capital Improvements				
S5.B.8.b. Control of Runoff from Existing Residential and Commercial Development (includes retrofitting)	21,113	2,237,646	785,804	622,505
S5.B.8.e. Consideration of Water Quality in Flood Control Projects	0	2,766	7,144	434
Administration				
Program Administration/Coordination/Overhead (no component)	156,227	836,578	334,366	335,762
S5.B.3. Legal Authority	0	0	0	
S5.B.5. Fiscal Analysis	0	0	0	0
Total	**$2,061,837**	**$7,789,925**	**$6,932,367**	**$6,552,965**

Regulatory program expenditures were about the same as the previous year and higher than the estimate from the original SWMP and Clean Water Program Fund budget. Storm sewer and road O and M expenditures appear to be about $333,000 lower than in 2001 but actual maintenance levels remained about the same. Of the $333,000 decrease in O and M expenses between 2001 and 2002, about $240,000 is due to dropping the reporting of roadside mowing as an NPDES municipal stormwater permit requirement. Another $94,000 decrease is due to completion of a project to develop storm sewer maintenance tracking. Generally, new O and M activities have been performed at less expense than

anticipated when the budget was drawn up. The monitoring program continues to grow as new projects and program support activities are developed. Education activities also continue to expand. The stormwater capital improvement projects were largely from unbudgeted retrofits by the county road construction program. Road project stormwater retrofits add treatment to storm drains passing through road construction areas using Road Fund revenue. The stormwater program expenditures on stormwater capital projects were mainly for design and planning because site conditions and property acquisition problems precluded construction during 2002. Administrative expenses appear to have leveled off after establishment of the stormwater fee billing system in 2000.

4. REVISIONS TO THE SWMP FISCAL ANALYSIS

The SWMP included financial analysis for a five-year program. Ecology wrote a permit to cover the period of August 1999 to December 31, 2000 (subsequently extended until a replacement is issued). The permit included some activities of the five-year SWMP but not all of it. A new SWMP, including the five-year fiscal analysis will be drafted following issuance of the Western Washington phase one municipal NPDES permit (expected in 2004 or later)

Until a new permit is effective, the program will likely continue indefinitely under the estimated 2000 SWMP budget based on the September 1998 permit application.

5. SUMMARY AND ANALYSIS OF THE CUMULATIVE MONITORING DATA COLLECTED THROUGHOUT THE TERM OF THE PERMIT

All monitoring activities are described under Status of Permit Component S5.B.4. Attachment A summarizes analysis of stream and lake health data collected before and after permit issuance. Macroinvertebrate, water chemistry, and fecal bacteria data for a stream segment is reduced to a single stream health category. Where there were no field information, a probable health category was assigned from regression analysis of observed stream health scores, versus the percent drainage basin forest cover and percent drain basin TIA.

6. SUMMARY OF COMPLIANCE ACTIVITIES

Information describing compliance activities, including the nature and number of official enforcement actions, inspections, and types of public education activities are included in the description of the status of each permit component.

7. IDENTIFICATION OF KNOWN WATER QUALITY IMPROVEMENTS OR DEGRADATION

During the reporting period, no data show a change in water quality. It will require several years of data collected specifically for that purpose to assess changes or a steady state condition in county streams.

8. WATERSHED-WIDE COORDINATION AND ACTIVITIES

Activities to coordinate watershed protection are listed in Status of Permit Component S5.B.7. These are generally ongoing activities, however some may end or change in the future as shared projects are completed or resources are shifted to other coordination activities. Greater coordination is expected as four Clark County cities begin programs to meet NPDES Phase II municipal stormwater requirements.

ATTACHMENT A. OBSERVED AND PROBABLE STREAM HEALTH